

**GOVERNMENT OF ANDHRA PRADESH
ABSTRACT**

Minor Irrigation - Tank Reliant Irrigated Area Development Project - Preliminary Project Report (PPR) Preparation - Orders - Issued

Irrigation & Command Area Development, (MIG1) Department

G.O.Ms.No. 17

Date:31-01-2012

Read the following:-

1. G.O.Rt.No.1157, I&CAD (MI.IV) Department dt.14-06-2009
2. G.O.Ms.No.72, I &CAD (MI.III) Department dt.25-05-2011
3. G.O.Ms.No.139, (MIG) Department dt.16-09-2011
4. Govt. Memo No.477/MIG1/2011 dated 10-01-12, enclosing Minutes of discussions regarding development of Tank Information System by APSRAC, dated 28-12-2011.
5. CNo.477/MIG1/2011 dated 30-01-2012: Minutes of discussion regarding linkages of Tank Information System with TRIAD PPR preparation work, dated 28-01-2012.

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Order:

1. Introduction:

A. Broad conceptual guidelines of the Tank Reliant Irrigation Area Development (TRIAD) project and coverage of Districts has been communicated in GoMs No.72, I&CAD department, dated 25-05-2011 (reference second cited). The following 8 districts (Table-1), where more than 50% of the net irrigated area (NIA) is fed by tanks and other minor irrigation sources, have been identified for the TRIAD Project.

Table-1: TRIAD Project Districts

Region	District	Net Irrigated Area (Acres)	% MI
Andhra	Srikakulam	554,050	61%
	Vizianagaram	405,171	71%
	Vishakhapatnam	354,589	67%
Rayalaseema	Chittoor	435,088	61%
	Anantapur	323,686	53%
Telengana	Adilabad	318,251	54%
	Medak	292,991	91%
	Ranga Reddy	134,896	93%
Total		2,818,722	

Note: Includes irrigation potential of ongoing projects, most of which are in the major and medium irrigation sector. Thus, the actual share of tank reliant irrigation will be higher than what is indicated in this table.

B. Preliminary Project Report (PPR) is to be prepared on the basis of Catchment area studies integrating Remote Sensing, Global Positioning System (GPS) and Conventional Surface Hydrology data.

C. Considering the long tradition of tank chains and tank reliant irrigation in Chittoor area, pilot studies were taken-up in approximately 50 Sq.Km area of three micro basins in the same district. Pilot study in the Pennar sub-basin by the AP State Remote Sensing Application Centre (APSRAC), yielded the following data (Table-2) for Preliminary Project Report (PPR) preparation work.

Table-2: Unit cost data for TRIAD preliminary project report preparation

PPR Component	Unit of Measurement	Rs / Unit
1 Physical verification of existing tanks and cascades	Number of Old (Existing) Tanks	2,000
a Collection of hydraulic particulars using hand held GPS instrument (8-10 points).		
b Photography and documentation of the present condition of tanks, sluices, surplus weirs, etc.		
c Command area data regarding bore wells, open wells, farmers, land holdings and crops.		
2 Preparation of soil maps on at least 1:50000 scale, using satellite data.	Square Km.	150
3 Hydrological estimation for existing tanks	Number of Old (Existing) Tanks	3,000
a Collection of rain fall data from the Directorate of Economics and Statistics (DES) and the India Meteorological Department (IMD)		
b Run off and yield estimation		
c Designed flood estimation		
d Tank yield assessment for respective crop demand		
4 Preparation of preliminary investigation reports including hydrological assessment for new tanks.	Number of New Tanks	5,000
5 Cascade Assessment	Number of Links between tanks	500

2. Tank Memoirs & Information System:

A. Earlier Government had issued orders in GO Rt No.1157,I&CAD(MI4) dated 14-06-2009 for preparation of Tank Memoirs, in respect of erstwhile Panchayat Raj tanks, mostly with 10-40 hectares (25-100 acres) ayacut. More than 64 data elements grouped under four categories namely (i) Location details (ii) Hydrological particulars (iii) Standards of the tank (iv) Other relevant information are being collected. Tank Memoirs are permanent records useful for taking up restoration and repair works as and when needed. An amount of Rs.24.804 crores was sanctioned for preparation of the memoirs by outsourcing the task to private firms. The CE-MI has informed that 16 agencies are engaged for preparation of Tank Memoirs. These agencies are also gathering (a) Video recordings of the Ayacut viewed from the tank bund, (b) Video recording of tank bed and foreshore viewed from the tank bund, and (c) Photographs of tank structures namely sluice, surplus weir and bund etc. There are 20,868 tanks spread over 22 districts for which tank memoir preparation work has been entrusted. Out of this 10,817 tanks fall in the 8 TRIAD project districts. By now tank memoirs have been prepared for 14,798 tanks including 6,325 tanks in TRIAD Project districts.

B. Subsequently, the DG APSRAC proposed development of a Tank Information System (TIS) using high resolution satellite remote sensing, geographical information system (GIS), and geographical positioning system (GPS) data. An amount of Rs598.65 lakhs has been sanctioned in GOMs139 I&CAD(MIG) dated 16-09-2011 (reference third cited), for development of TIS while integrating the tank memoir preparation work sanctioned earlier.

C. Synergies exist between the Tank Memoir preparation, the Tank Information System and the TRIAD project preparation works. Accordingly, the APSRAC will be able to generate the following information that can feed into preparation of preliminary project reports for the TRIAD project.

1. Satelite data & Survey of India Topo sheets.
2. Delineation of catchment area of tanks and cascades, including drainage, using 1:25000 scale, and where this is not available, using 1:50000 scale SI topo sheets.
3. Preparation of land cover and land use map of the area.
4. Preparation of slope map using SI topo sheets.
5. Eyeballing of SI topo sheets, group discussion and brainstorming to identify potential new tank sites and new cascades.

D. However, during follow-up discussions, APSRAC officers have indicated that the TIS cost estimate submitted by them did not include the cost of preparation of tank memoir for the remaining MI tanks. The remaining tanks include mostly, larger MI tanks. Substantive parts of tank memoirs for these tanks would be readily available in the concerned Irrigation Divisions. Additional data, consistent with modern concept of tank memoirs, such as GPS coordinates, etc. will have to be gathered. Hence, APSRAC officers have been asked, vide para 2 (b) & (d) of reference fourth cited, to group the Tank Memoir data elements and estimate additional cost for gathering of field data to complete the tank information system.

E. The DG APSRAC has, in the mean while informed that, Tank Memoir data elements that can be gathered from records & documents have since been identified in consultation with the CE-MI. These data elements mostly identify the tanks. APSRAC will incorporate these identifying data into the Tank Information System. However, these identifying data elements constitute a small part of the Step-1 of TRIAD PPR. This does not significantly reduce the unit cost for TRIAD step-1. Hence, it will be desirable to ask the PPR preparation agencies to gather complete information required for step-1 of TRIAD PPR.

3. Administrative Sanction for TRIAD - Preliminary Project Report Preparation:

A. Government, after careful consideration, hereby accord the administrative approval for Rs.2493.82 lakhs (Rupees twenty four crores, ninety three lakhs, and eighty two thousand only) for development / preparation of Preliminary Project Report (PPR) for Tank Reliant Irrigated Area Development (TRIAD) Project for 8 districts as per the cost estimate given in

table-3 below, based on the unit costs derived from the pilot studies done by APSRAC in Pennar sub-basin of Chittoor district.

Table-3: Cost estimate for TRIAD preliminary project report (PPR) preparation. [Costs in Lakh Rupees]

Sl No	District	Component wise PPR Cost Estimate					Total Cost of PPR
		Physical Verifn.	Soil Maps	Old Tank Hydrol.	New Tank Est.	Cascade Invstgn. Identifn.	
1	Srikakulam	175.98	8.75	263.97	25	7	480.70
2	Vizianagaram	184.58	9.16	276.87	25	7.25	502.86
3	Vishakhapatnam	82.00	17.42	123.00	25	14	261.42
4	Chittoor	176.58	22.59	264.87	5	18	487.04
5	Anantapur	64.40	28.85	96.60	5	23	217.85
6	Adilabad	31.18	24.25	46.77	20	19.5	141.70
7	Medak	83.00	14.63	124.62	20	11.75	254.00
8	Ranga Reddy	43.18	11.30	64.77	20	9	148.25
	Total	840.90	136.95	1261.47	145	109.5	2493.82

- B. The above expenditure of Rs2493.82 lakhs shall be debited to the head of account “4702 NSP - MH 101 - GH 11 - SH 12 - 530 Major Works / 531 Other Expenditure” within the budget provision of minor irrigation.
- C. The TRIAD PPR preparation work for the Chittoor district shall be taken up by the APSRAC, at the unit rates given in table-2, and subject to the administrative sanction in table-3 above.
- D. For the remaining seven districts, where TRIAD is proposed, the Commissioner CAD shall identify, by open tender call, agencies to carry out PPR work. The following prequalification criteria has been developed in consultation with APSRAC officers, Special Commissioner CAD and the Director Ground Water Department.
 - i. The firm should have been in existence at least for a period of seven years.
 - ii. Minimum operational experience of five years, in at least one of the following activities, namely; (a) hydrological investigation, (b) design and / or estimation of minor irrigation systems, (c) execution of minor irrigation systems, (d) testing, quality assurance, monitoring and evaluation of minor irrigation systems.
 - iii. Has on its staff at least one full time professional in any two of the following specialties, namely; (a) Hydrology (Civil Engineering with at least five years experience in design or execution of irrigation systems), (b) Geographical Information System (GIS) Image Processing Expert (Masters in

Science or Bachelor in Engineering with five years experience in GIS image processing), and (c) Hydrogeologist (Masters in Applied Geology or Geology with at least three years experience in delineation of zones on the basis of weathering characteristics, joint pattern, solution features, disposition of aquifers on the basis of attitude of beds formation); (d) Soil Mapping Expert (BSc Agriculture with at least three years experience in soil mapping or soil survey).

iv. Annual turnover of at least one crore rupees for three years.

E. The Commissioner, CAD shall take further necessary action accordingly,

4. This order issues with the concurrence of the Finance department vide their U.O.Note No.32802-A/1018/Expr.PW/A1/11, dated 8-12-2011.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF ANDHRA PRADESH)

**Dr.PRASANTA MAHAPATRA
PRINCIPAL SECRETARY TO GOVERNMENT**

To:

1. The Commissioner, CAD, Errumanzil, Hyderabad
2. The Chief Engineer, Minor Irrigation, Hyderabad
3. The Director General, WALAMTARI, Hyderabad
4. The Spl. Commissioner, CAD, O/o The Commissioner, CAD, Jalasoudha Building, Errumanzil, Hyderabad
5. The Director, Ground Water Department, BRKR Bhavan, Hyderabad
6. The Chief Engineer, CAD, Hyderabad

Copy to:

1. The Principal Secretary to CM
2. Finance (Exp. PW) Department
3. The OSD to Minister for Minor Irrigation
4. The P.S. to Prl. Secretary to Govt. I&CAD Dept.
5. The P.S. to Spl. Secretary to Govt. I&CAD Dept.
6. SF/SC

::FORWARDED:: BY ORDER::

SECTION OFFICER